

REMARKS

Applicant acknowledges receipt of an Office Action dated October 5, 2007. In this response, Applicant has amended claims 22-33 and 35-41 to place the claims in a format more suitable for U.S. patent practice by replacing the phrase “characterized in that” with the term “wherein,” inserting the conventional transitional term “comprising,” correcting minor antecedent basis issues, *etc.* These amendments do not narrow the scope of any of pending claims 22-41. Following entry of these amendments, claims 22-41 remain pending in the application.

Applicant respectfully requests reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

Rejection Under 35 U.S.C. § 102

On page 2 of the Office Action, the PTO has rejected **claims 22 and 28** under 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. Patent 5,301,673 to Rabito et al. (hereafter “Rabito”). Applicant traverses this rejection for the reason set forth below.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). See generally MPEP § 2131.

Here, Rabito fails to disclose the step of “simultaneously determining in vivo distributions of bioluminescent and/or fluorescent markers and radioactive markers” as recited in independent claim 22. Rabito also fails to disclose “alternately determining in vivo distributions of bioluminescent and/or fluorescent markers and in vivo distributions of radioactive markers with a common measurement apparatus” as recited in independent claim 28. Furthermore, Applicant notes that Rabito fails to disclose “determining in vivo distributions of bioluminescent and/or fluorescent markers and radioactive markers at identical projection angles” as recited in independent claim 22 and also fails to disclose “determining in vivo distributions of bioluminescent and/or fluorescent markers and . . . radioactive markers. . . at identical projection angles” as recited in independent claim 28. For

at least these reasons, Applicant submits that the outstanding §102 rejection is improper and ought to be withdrawn.

Rabito shows a monitoring device with a detector for fluorescent or radioactive markers. In column 3, lines 32 to 58, Rabito discusses the use of a photodetector or, alternatively, a radiodetector. The specification discloses embodiments for radiodetectors from column 6 to column 14, line 44, and embodiments for photodetectors from column 14, line 44 to the end. None of the described embodiments show the combination of two detectors, one for fluorescent markers, and one for radioactive markers. For example, from column 3, lines 21 to 38, it is obvious for persons skilled in the art that only one type of marker, *i.e.* a radio marker or a fluorescent marker, is used and that the detector is appropriately detecting only one kind of radiation, *i.e.* light or radioactive radiation. There is no disclosure of simultaneously using a radiodetector together with a photodetector for concurrently and separately detecting photons emitted by a fluorescent marker and photons emitted by a radioactive marker or using a radiodetector together with a photodetector in a common apparatus.

In view of the foregoing, Applicant respectfully requests reconsideration and withdrawal of the outstanding rejection under § 102.

Rejection Under 35 U.S.C. § 103

On pages 3-5 of the Office Action, the PTO has rejected **claim 25** under 35 U.S.C. § 103(a) as allegedly being unpatentable over Rabito in view of U.S. Patent 6,232,107 to Bryan *et al.* (hereafter “Bryan”); **claim 26** as allegedly being unpatentable over Rabito in view of U.S. Patent Application 2003/0101466 to Turner (hereafter “Turner”); **claim 27** as allegedly being unpatentable over Rabito, in view of Turner, further in view of U.S. Patent 6,312,961 to Voirin *et al.* (hereafter “Voirin”); **claims 23, 24, 29-34, and 36-41** as allegedly being unpatentable over Rabito in view of Turner, in view of Voirin, further in view of U.S. Patent 5,678,550 to Bassen *et al.* (hereafter “Bassen”); and **claim 35** as allegedly being unpatentable over Rabito, in view of Turner, in view of Voirin, in view of Bassen, and further in view of U.S. Patent Application 2002/0042566 to Matsuzaki *et al.* (hereafter “Matsuzaki.”) Applicant traverses these rejections for the reasons set forth below.

In order to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, prior art references must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in Applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991).

As outlined above, with respect to the rejections of independent claims 22 and 28, Rabito fails to disclose, teach, or suggest all of features of either claim 22 or claim 28. With respect to the dependent claims rejection under §103, the PTO has combined Rabito with various combinations of Bryan, Turner, Voirin, Bassen, and Matsuzaki. None of these references, taken either individually or in combination with Rabito, cures the fundamental deficiencies in Rabito outlined above.

In Bryan, the use of photoluminescence markers emitting in distinct wave-lengths is described. Bryan does not show the detection of radioactive markers. Rather, only fluorescence or luminescence markers are described.

While Turner relates to some radio markers, Turner does not describe any fluorescent markers. In particular, Turner does not relate to photo detection and consequently does not show the combined detection of light and irradiation of radio markers. Like Bryan, Turner only relates to one type of marker and consequently does not give any incentive to provide the combined detection of radio markers and fluorescent markers as defined in the claims of the present application.

Bassen describes an endoscope with a colour selective beam divider which divides the light emitted from the endoscope into an interference component and a fluorescent component. According to Bassen, X-rays are used for positioning the end of the endoscope by X-raying a part of the body, in which the end of the endoscope is located. Thus, the light emitted from the endoscope is emitted in a direction into which the endoscope points and the X-rays are irradiated perpendicularly to the endoscope for monitoring the position of the endoscope. Firstly, the X-rays and the light emitted from the endoscope propagate in

completely different directions, are emitted from distinct locations and are not detected in identical projection angles, in contrast to the invention. Further, the selection of wavelengths only relates to the light emitted from the endoscope. There is no distinction between light photons and photons emitted by radioactive markers as defined by the presently claimed invention.

Voirin describes the separation of distinct wavelengths using a Bragg-filter. Voirin does not relate to radioactive markers or radioactive emissions and, consequently, does not disclose or render obvious the detection of radioactive markers.

In summary, none of the cited documents show the concurrent (temporally or within a common apparatus) detection of light and radiation emitted by radioactive markers. In contrast to the presently claimed method, the cited documents do not show (1) two distinct detectors for both, radioactive as well as for fluorescent markers in a common apparatus, (2) the concurrent detection of fluorescent and radioactive markers at the same point of time, or (3) the detection of fluorescent and radioactive markers at identical projection angles. The methods and devices described in the cited documents do not render obvious such a combination of two detectors for two different types of markers and cannot provide a superimposed image of a body region containing both, radioactive markers as well as fluorescent markers. Since fluorescent markers and radioactive markers have distinct properties and performance regarding resolution, sensitivity, permanence and selectivity regarding type of tissue, the combination of both detectors provides imaging and tomography results with significantly increased information content.

Since, none of the additional references does anything to resolve the fundamental deficiencies in Rabito, Applicant submits that no combination of these references can properly render either independent claim 22 or independent claim 28 obvious and that the dependent claims are non-obvious for at least the same reasons as their respective independent claims.

With regard to claim 29, it should be noted that Bassen and Voirin teach the separation of distinct optical wavelengths, in contrast to the apparatus of claim 29 which comprises a camera for light and a SPECT detector for radioactive irradiation. In particular, none of the cited documents describes or renders obvious a layer which reflects optical

photons and transmits photons of radioactive markers. In comparison to the described Bragg-filters, such a layer can be provided with significantly reduced costs.

In view of the foregoing, Applicant respectfully requests reconsideration and withdrawal of the outstanding rejections under § 103.

CONCLUSION


Applicant believes that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check or credit card payment form being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. § 1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

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